

What is claimed is:

1. A nonaqueous electrolyte secondary battery in which a safety valve is arranged on one end side of a cylindrical outer packaging can holding an electrode element therein, and the safety valve comprising a projecting portion projecting toward the electrode element and connected to a lead of the electrode element at the center of the safety valve, wherein

a plurality of linear thin portions are formed almost along at least two circumferences centering on the projecting portion, and

a thin portion extending in a radial direction is formed across end portions of the linear thin portions adjacent to each other.

2. A nonaqueous electrolyte secondary battery according to claim 1, wherein said safety valve comprises the lengths of the plurality of linear thin portions along the same circumference being almost equal to each other.

3. A nonaqueous electrolyte secondary battery according to claim 1, wherein said safety valve comprises at least a disk and a safety valve arranged on one end side of the cylindrical outer packaging can holding an electrode element therein, said disk has a portion having a thickness smaller than that of a peripheral portion, and the projecting portion is connected to the lead of the electrode element through the small-thickness portion of the disk.

4. A nonaqueous electrolyte secondary battery according to claim 1, wherein said safety valve comprises at least a disk and a safety valve arranged on one end side of a cylindrical outer packaging can holding an electrode element therein, the disk has a central hole, the safety valve has a projecting portion projecting toward the electrode element at the central portion of the safety valve, and the projecting portion is connected to a lead of the electrode element through the central hole of the disk, being characterized in that the disk has a linear thin portion.

5. A nonaqueous electrolyte secondary battery according to claim 1, wherein said safety valve welded on a sub-disk welded on a free end of the positive electrode lead.

6. A nonaqueous electrolyte secondary battery characterized by comprising the safety valve according to claim 1, wherein said battery comprises a material which can dope and undope lithium as the positive electrode and negative electrode active materials, and a nonaqueous electrolyte.

7. A nonaqueous electrolyte secondary battery according to claim 5, characterized by comprising an electrode member constituted by laminating the positive electrode and the negative electrode across a separator and winded in the shape of a spirally coiled electrode.

8. A nonaqueous electrolyte secondary battery comprising the safety valve according to claim 2, wherein said battery comprises a material which can dope and undope lithium as the positive electrode and negative electrode active

materials, and a nonaqueous electrolyte.

9. A nonaqueous electrolyte secondary battery according to claim 7, characterized by comprising an electrode member constituted by laminating the positive electrode and the negative electrode through a separator and winded in the shape of a spirally coiled electrode.

10. A nonaqueous electrolyte secondary battery comprising the safety valve according to claim 3, wherein said battery comprises a material which can dope and undope lithium as the positive electrode and negative electrode active materials, and a nonaqueous electrolyte.

11. A nonaqueous electrolyte secondary battery according to claim 9, wherein said battery comprises an electrode member constituted by laminating the positive electrode and the negative electrode across a separator and winded in the shape of a spirally.

12. A nonaqueous electrolyte secondary battery comprising the safety valve according to claim 4, wherein said battery comprises a material which can dope and undope lithium as the positive electrode and negative electrode active materials, and a nonaqueous electrolyte.

13. A nonaqueous electrolyte secondary battery according to claim 11, characterized by comprising an electrode member constituted by laminating the positive electrode and the negative electrode across a separator and winded in the shape of a spirally coiled electrode.

14. A safety valve for battery wherein at least a

disk and a safety valve are arranged on one end side of a cylindrical outer packaging can holding an electrode element therein, the disk has a central hole,

the safety valve has a projecting portion projecting toward the electrode element at the central portion of the safety valve, and

the projecting portion is connected to a lead of the electrode element through the central hole of the disk, characterized in that the disk has a linear thin portion.

15. A safety valve according to claim 13, wherein said thin portion is almost along a circle centering on a symmetrical point of the central hole.

16. A nonaqueous electrolyte secondary battery comprising said safety valve according to claim 14, wherein said battery comprises material which can dope and undope lithium as the positive electrode and negative electrode active materials, and a nonaqueous electrolyte.

17. A nonaqueous electrolyte secondary battery according to claim 15, wherein said battery comprising an electrode member constituted by laminating the positive electrode and the negative electrode across a separator and wound in the shape of a spirally coiled electrode.

18. A nonaqueous electrolyte secondary battery characterized by comprising the safety valve according to claim 13, wherein said battery comprises a material which can dope and undope lithium as the positive electrode and negative electrode active materials, and a nonaqueous electrolyte.

19. A nonaqueous electrolyte secondary battery according to claim 17, wherein said battery comprising an electrode member constituted by laminating the positive electrode and the negative electrode across the separator and wound in the shape of a spirally coiled electrode.